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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

TARI LABS, LLC,

Plaintiff,

v.

LIGHTNING LABS, INC.,

Defendant.

CASE NO. 3:22-CV-07789-WHO

DECLARATION OF SARAH BUTLER

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I. ASSIGNMENT AND SUMMARY OF OPINIONS

1. I was asked by counsel for Defendant, Lightning Labs, Inc. (hereinafter "Lightning Labs" or "Defendant") to review the survey and report submitted by Dr. Robert Palmatier.[1] According to his report, Dr. Palmatier was asked "to survey and evaluate the level of consumer confusion caused by Defendant Lightning Labs, Inc. ('Defendant,' 'Lightning Labs,' or 'Taro') and its impact on Tari's brand, reputation, and marketing performance."[2] Based on his survey of images of words,[3] Dr. Palmatier estimates a net level of 35.3 percent confusion.[4]

2. Dr. Palmatier has not conducted a reliable survey to test for consumer confusion purportedly caused by Lightning Labs' use of TARO. The survey design violates a number of the most basic and fundamental principles of survey design, rendering the results meaningless for determining whether confusion is likely in the real world. As constructed, Dr. Palmatier's survey is simply a matching test between abstract words that does not reflect any real-world scenario. The survey further lacks an appropriate control, which is an essential element of a properly conducted survey, and it does not survey the correct population (i.e., the developers who use Lightning Labs' TARO protocol). More specifically:

a. Dr. Palmatier used a *Squirt*-format survey, which is only appropriate when the products or services at issue appear in close proximity in the marketplace. Although Dr. Palmatier claims that the parties' services are proximate, he provides no real support for this assertion. The only evidence of proximity presented by Dr. Palmatier is the fact that both parties have a presence on the internet and social media platforms and have articles in some of the same publications. But, Dr. Palmatier presents no evidence that any consumer would encounter both Plaintiff and Defendant proximately in any of these channels. The lack of overlap between

[1] Declaration And Preliminary Expert Report of Dr. Robert Palmatier in Support Of Plaintiff's Ex Parte Application For Temporary Restraining Order To Preserve The Status Quo And Motion For Preliminary Injunction, *Tari Labs, LLC v. Lightning Labs, Inc,* United States District Court, Northern District of California, Case No. 3:22-cv-07789-WHO, dated February 21, 2023 (hereinafter "*Palmatier Declaration*").

[2] *Palmatier Declaration,* ¶ 1.

[3] *Palmatier Declaration,* ¶ 48.

[4] *Palmatier Declaration,* ¶ 7.

Plaintiff and Defendant renders a *Squirt*-style survey inappropriate for testing confusion under these circumstances.

b. Dr. Palmatier's survey is entirely devoid of real-world, marketplace conditions, which is an essential element for a survey that purports to measure real-world confusion. While instructing respondents that they will be shown "products," the survey simply presents a series of logos with no product information, advertising, or websites. There is no evidence that any developer or other consumer would see nothing more than a series of names when selecting a blockchain protocol to use, and such a scenario defies common sense.

c. Dr. Palmatier's survey asked respondents biased and leading questions that encouraged them to guess and select a matching name. Respondents are asked to identify the name that is ***likely*** the same company, is ***likely*** affiliated, associated, or connected with, or is ***likely*** to have the authorization, approval, or endorsement of Tari. Asking respondents to evaluate what might be "likely" is leading because no information other than a name and logo is shown, and encourages guessing.

d. Dr. Palmatier's survey does not include an external control group, which is an essential element of a properly conducted survey that purports to show some level of confusion. Instead, Dr. Palmatier used internal controls that are improper in this context to measure guessing, given a *Squirt* format survey that simply tests different names.

e. Finally, Dr. Palmatier's survey population is overly inclusive. A forward confusion survey—such as the one Dr. Palmatier purported to conduct—should be conducted among consumers of the junior user. I understand that TARO's target market is sophisticated software developers who want to create new digital assets on the Bitcoin blockchain. Rather than focus on software developers, or even those who are interested in *creating* digital assets as opposed to *using* them, Dr. Palmatier has simply screened for individuals who "buy or use Bitcoin, stablecoins, cryptocurrencies, NFTs, or other digital assets." Based on this very general

description, it is possible that none of the participants in Dr. Palmatier's survey are developers who would use TARO's services. I also understand from my review of the papers filed in this case that TARO is not an alternative name for Bitcoin or the name of any stablecoin, cryptocurrency, NFT, or digital asset, and so the participants in Dr. Palmatier's survey would not necessarily ever encounter the TARO mark. Additionally, given the vaguely worded screening question, it is unclear what "use" or "other digital assets" are intended to represent. Dr. Palmatier also imposed quotas to ensure that his survey population is representative of the U.S. population, without any evidence that the demographic characteristics of the U.S. population as a whole resemble the population of consumers who would purchase or trade in products like cryptocurrencies or NFTs. In fact, data demonstrates that consumers in this broad market are more likely to be male and younger as compared to the age and gender distribution of the entire U.S.

3. The remainder of this declaration provides a brief background and discusses my detailed review of Dr. Palmatier's survey.

II. BACKGROUND

4. Plaintiff Tari Labs, LLC is a limited liability corporation headquartered in Oakland, California, founded in March 2018.[5] I understand that Tari Labs owns a trademark registration for TARI for "[c]ryptocurrency trading and exchange services, namely, providing a digital currency or digital token for use by members of an on-line community via a global computer network; cryptocurrency trading and exchange services, namely, providing a digital currency or digital token, incorporating cryptographic protocols, used to operate and build applications and blockchains on a decentralized computer platform and as a method of payment for goods and services and as a method of transfer of digital assets."[6]

[5] Complaint for Trademark Infringement and Unfair Competition, *Tari Labs, LLC v. Lightning Labs, Inc,* United States District Court, Northern District of California, Case No. 4:22-cv-07789, dated December 8, 2022 (hereinafter "*Complaint*"), ¶¶ 5, 7.

[6] *Complaint,* ¶ 12.

5. I further understand that Tari Labs develops solely for the Monero blockchain but does not appear to currently have any TARI blockchain in use, other than a test or pre-release network that uses what Tari Labs describes as "fake Tari."[7] Tari Labs markets its products to "anyone," including retail consumers of digital assets.[8]

6. Defendant Lightning Labs is a corporation headquartered in Palo Alto, California, founded in 2016.[9] I understand that Lightning Labs is a software development company "focused on building technology to enable instant, high-volume, low-fee transactions – and developer infrastructure for what is known as the Lightning Network, an open-source protocol that is built on top of Bitcoin."[10] I further understand that in April 2022, Lightning Labs announced TARO and in September 2022, released initial code for developers to use TARO on the Bitcoin test network.[11]

7. On December 8, 2022, Plaintiff filed its *Complaint* and on February 21, 2023, Plaintiff filed a *Motion for Temporary Restraining Order* ("TRO").[12] In support of its request for a TRO, Plaintiff retained Dr. Robert Palmatier.

III. PALMATIER SURVEY

8. Dr. Palmatier conducted a *Squirt* format survey to evaluate the likelihood of confusion between Defendant's and Plaintiff's marks and opine as to the impact confusion would have in the marketplace.[13] Dr. Palmatier surveyed 200 adults[14] age 21 and older who were representative of the U.S. general population, and who had in the past six months "bought or

[7] Answer of Defendant Lightning Labs, Inc. to the Complaint, *Tari Labs, LLC v. Lightning Labs, Inc,* United States District Court, Northern District of California, Case No. 3:22-cv-07789-WHO, dated February 7, 2023 (hereinafter "*Answer to Complaint*"), pp. 3-4.
[8] *Complaint,* ¶ 16.
[9] *Complaint,* ¶¶ 6, 21.
[10] *Answer to Complaint,* p. 3.
[11] *Answer to Complaint,* p. 3.
[12] Memorandum of Points and Authorities in Support Of Plaintiff's Ex Parte Application For Temporary Restraining Order To Preserve The Status Quo And Motion For Preliminary Injunction, *Tari Labs, LLC v. Lightning Labs, Inc,* United States District Court, Northern District of California, Case No. 3:22-cv-07789-WHO, dated February 21, 2023.
[13] *Palmatier Declaration*, ¶ 3.
[14] *Palmatier Declaration*, ¶56.

considered using Bitcoin, stablecoins, cryptocurrencies, NFTs, or other digital assets," or who planned to do so in the next six months.[15]

9. Once qualified for the survey, respondents were told that they would be shown pictures of unspecified "products."[16] Respondents were not shown pictures of any products but instead were shown names and logos for companies.[17] First, Dr. Palmatier showed respondents the TARI mark (referred to as "Product 1"), and subsequently showed an array of four other marks: Defendant's TARO, and three additional marks: CORDA, POLYGON, and ECHO.[18] Respondents were then asked a series of questions to determine which of the "products" (again, no products were shown, only names) are likely made by the same company that makes Product 1 (again, no product was shown, just the name "Tari"), are likely affiliated, associated, or connected to the same company making Product 1, or are likely to have the authorization, approval, or endorsement of the same company that makes Product 1.[19]

10. Dr. Palmatier reported that 51 percent of respondents thought that TARO was made by, affiliated with, or authorized by TARI.[20] For the three other names, the comparable percentages were 27.5 percent (POLYGON), 12.5 percent (ECHO), and 7.0 percent (CORDA).[21] Taking the average of these three rates yielded an average of 15.7 percent.[22] Dr. Palmatier uses this average as a "control" in his survey and concludes that the net rate of confusion between Tari and TARO was 35.3 percent.[23] Based upon these results, Dr. Palmatier concludes that "confusion is highly likely to occur in the marketplace between the TARI® and TARO marks."[24]

[15] *Palmatier Declaration*, ¶ 53.
[16] *Palmatier Declaration*, Exhibit 4, p. 4.
[17] *Palmatier Declaration*, ¶ 48.
[18] *Palmatier Declaration*, ¶ 48.
[19] *Palmatier Declaration*, Exhibit 4, pp. 4-5.
[20] *Palmatier Declaration*, ¶ 77.
[21] *Palmatier Declaration*, ¶ 79.
[22] *Palmatier Declaration*, ¶ 79.
[23] *Palmatier Declaration*, ¶ 79.
[24] *Palmatier Declaration*, ¶ 80.

IV. RESPONSE TO PALMATIER SURVEY

16. Dr. Palmatier's survey is devoid of marketplace realities, uses an inappropriate survey method, asks leading questions, does not have an appropriate control, and surveys an overly inclusive and potentially irrelevant population. Each one of these failings is sufficient to render the survey unreliable but, taken together, mean that the results are meaningless and cannot be used to demonstrate any potential for confusion in the real world.

a. The *Squirt* Methodology Is Inappropriate in this Context

17. Dr. Palmatier indicates that he "designed a '*Squirt*' format survey of relevant consumers."[25] A *Squirt* format survey shows both parties' trademarks (either juxtaposed together at once or separately seriatim) and asks a series of questions as to whether the survey respondents believe there is an affiliation or connection between the products or the companies that put them out. A *Squirt* survey may be appropriate when the marks at issue appear in close proximity in the marketplace. Dr. Palmatier's justification for using a *Squirt* format is based upon his understanding that "the Tari and Taro protocols will be close to one another in the marketplace, which increases the likelihood that consumers will be confused between the two firms."[26]

18. However, in properly designing a *Squirt* survey the researcher must actually demonstrate that the products or services of the junior and senior user appear proximately in the marketplace and that a consumer, under typical circumstances, would encounter both parties' marks.[27] This is important because of the potential for "demand effects" in a survey, or effects that occur as the result of the survey design which cue respondents to try to figure out the "correct" answers to the survey questions.[28] Courts have recognized that the potential for demand effects is inherent in *Squirt* surveys because of the presentation of the items being tested in proximity,

[25] *Palmatier Declaration*, ¶ 4.
[26] *Palmatier Declaration*, ¶ 34.
[27] Swann, J. (2022). Likelihood-of-confusion surveys, pp. 59-78 in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 2nd ed., Shari Seidman Diamond and Jerre Swan, eds., Chicago IL: American Bar Association, p. 60 (hereinafter "*Swann*").
[28] Simonson, I. and Kivetz, R. (2012). Demand effects in likelihood of confusion surveys: The importance of marketplace conditions, pp. 243-259 in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 1st ed., Shari Seidman Diamond and Jerre Swan, eds., Chicago IL: American Bar Association, p. 243 (hereinafter "*Simonson & Kivetz*").

which may suggest "some sort of relationship between the different items when the possibility might not even have occurred to the vast majority of consumers who see the items."[29]

19. Simply having a presence on the same social media or developers' platform does not mean that goods or services are proximate. As one author has noted, "[t]he mere fact that a senior user's and a junior user's marks both appear somewhere on the internet is, by itself, basely insufficient to justify use of the Squirt format."[30]

20. To support his assertion that the marks are proximate (and to justify his use of a *Squirt* format), Dr. Palmatier notes that both companies are on the internet.[31] But, he provides no evidence that any consumer would come across these pages in close succession. He presents no online search query that would generate links to both companies, no third-party sites that list both companies, and no scenario in which a typical consumer would see these pages together.

21. My own testing of Google searches with keywords related to Tari such as "tari blockchain" or "tari protocol" does not yield results including sites for or related to Lightning Labs or TARO, and conversely searches for TARO or Lightning Labs do not yield links for Tari.[32]

22. Dr. Palmatier also notes that "both parties use the same social media platforms, including Twitter, Reddit, Discord, and Substack,"[33] but here again does not demonstrate how the marks would be seen proximately on these platforms. I have reviewed these channels where Dr. Palmatier indicates there is overlap between TARO and Tari and found that there is no evidence of a search that would yield the two together in proximity. On each of these platforms, I conducted searches (1) including TARO and Tari and (2) using general terms such as digital, blockchain, or bitcoin and for neither search type was able to find any instance where both TARO and Tari appear together in the search results in proximity.[34]

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[29] Edwards, G. K. and Mayberry, J. D. (2022). The *Daubert* revolution and Lanham Act surveys, pp. 337-370 in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 2nd ed., Shari Seidman Diamond and Jerre Swan, eds., Chicago IL: American Bar Association, p. 359 (hereinafter "*Edwards & Mayberry*").

[30] *Swann*, p. 73.

[31] *Palmatier Declaration*, ¶ 41.

[32] See **Exhibit A**.

[33] *Palmatier Declaration*, ¶ 42.

[34] See, e.g., examples in **Exhibit B**.

23. Dr. Palmatier also cites to industry press publications where both TARO and Tari "promote their protocols"[35] to support his assertions of proximity. As with the internet broadly, and the platforms discussed above, I find no evidence that the marks at issue would have appeared proximately in these publications. For example, in Bitcoin Magazine, which Dr. Palmatier characterizes as a "common industry marketing channel"[36] for TARO and Tari, I was able to locate articles about both TARO[37] and Tari[38] when conducting independent searches for the terms, but could not find any circumstance in which these articles would appear together on the same page of results.[39] In fact, the dates of the articles for the respective companies do not align – the one article in Bitcoin Magazine mentioning Tari was published in 2018, while the articles mentioning TARO were published in 2022.

24. Furthermore, though Dr. Palmatier notes that "[r]esources related to Tari and Taro are both available on Github, a website used by developers,"[40] he not only fails to provide evidence that the marks would be seen proximately there but as described in Section IV.e, he surveys a much broader consumer base that is unlikely to actually be exposed to a specialized platform for developers.

25. Specifically, contrary to Dr. Palmatier's characterization of the TARO logo appearing on the "landing page of Taro,"[41] I understand that, because TARO is not a consumer-facing brand, "Lightning Labs does not use a logo for the TARO protocol, nor does Lightning Labs intend to create a consumer-facing homepage (as opposed to a developer-facing site with technical documentation)."[42] Further, I understand that the TARO "logo" Dr. Palmatier refers to appears to simply be a heading on one of many pages of Lightning's developer documentation (that all use the same black font). In other words, even the correct population of respondents (who

[35] *Palmatier Declaration*, ¶ 43.
[36] *Palmatier Declaration*, ¶ 43.
[37] https://bitcoinmagazine.com/search?query=taro, last accessed February 23, 2023.
[38] https://bitcoinmagazine.com/search?query=tari, last accessed February 23, 2023.
[39] https://bitcoinmagazine.com/search?query=taro+tari, last accessed February 23, 2023.
[40] *Palmatier Declaration*, ¶ 42.
[41] See figure embedded in *Palmatier Declaration*, ¶ 41.
[42] Declaration of Elizabeth Stark ¶ 34 (Feb. 27, 2022) (hereinafter "*Stark Declaration*")

Dr. Palmatier did not survey) would rarely if ever encounter the "logo" at issue, let alone proximate to any information about Tari or its logo.

26. Dr. Palmatier has provided no evidence that the parties' goods and services do or would appear proximately in a typical environment. Further, as I understand, Tari and Lightning Labs' TARO are different products/services. As Defendants explain, "[TARO] and Tari Labs build fundamentally different software on *different blockchains*."[43] TARO is used for development on the Bitcoin blockchain, while Tari is not; and Tari in fact claims that it is building on a separate blockchain from Bitcoin.[44]

27. Dr. Palmatier's decision to use a *Squirt* survey design, which is appropriate only when the junior and senior user's products or services are in fact proximal in the marketplace (beyond both simply being on the internet), is inappropriate and means that his survey results cannot be generalized to the real world. The scenario represented in Dr. Palmatier's survey in no way resembles the marketplace realities wherein consumers would not actually see the TARO and Tari marks in proximity on the internet. As such, Dr. Palmatier presents an artificial scenario and a survey exercise that is disconnected from consumers' actual experiences, rendering his conclusions specific only to the flawed and biased context of his survey.

b. The Palmatier Survey Does Not, in Any Way, Resemble Marketplace Reality

28. When testing for likelihood of confusion, it is imperative that the researcher design the survey such that it fairly represents the manner in which consumers might encounter the marks in the real world. If a survey does not fairly and accurately represent marketplace conditions, the results cannot be generalized outside the context of the survey to the real world. In other words, the survey must approximate the real world such that the conclusions can be applied to circumstances beyond the survey. A survey that tests or evaluates a completely fabricated world, unrelated to actual circumstances, cannot provide data to inform estimates of confusion that could

[43] *Answer to Complaint*, p. 3, emphasis added.

[44] *Answer to Complaint*, p. 3. I have examined the publications and platforms specifically cited by Dr. Palmatier as evidence of proximity and do not find that searches or queries for one company generate results for the other (See, **Exhibit C**), nor do I see that categorical searches (e.g. "blockchain") yield both parties together (See, **Exhibit B**).

occur in real life.[45] As one author notes about designing a confusion survey, "[a]t a minimum, this requires the survey expert to find out how the allegedly infringing product is typically encountered in the marketplace. The failure to discharge this obligation will often result in the exclusion of the survey."[46] Dr. Palmatier presents no evidence that any consumer would encounter the at issue marks in the manner he presented. In fact, the evidence he cites is to the contrary.

29. Dr. Palmatier presents no typical or real-world scenario in which consumers would see one name (TARI) and then see a series of other names (including TARO) with no other information or context. In fact, when discussing how the products are proximate, Dr. Plamatier references scenarios which stand in stark contrast to the artificial and unrealistic scenario presented in his survey.

30. For example, Dr. Palmatier references the companies' websites. The two companies' websites would not be seen together in proximity in the marketplace for the reasons described above (i.e., they do not appear together in any type of search that I have been able to replicate). But even if they were seen in proximity, the websites for Tari and Lightning Labs' TARO product of course provide extensive differentiating detail about the services offered, staff, product, press releases, and so on. Both websites even include descriptions of how they decided on their company/product name (See **Exhibit D**).[47,48] As such, were a consumer to in fact encounter these pages proximately in some way, they may actually be exposed to information about the different origins of the company names, thus decreasing the risk of consumer confusion.

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[45] McCarthy, J.T. McCarthy on trademarks and unfair competition, 4th ed. Chapter 32 in *Procedure in Trademark Infringement and Unfair Competition Litigation*, § 32:163. Survey methodology—Approximating market conditions.

[46] *Edwards & Mayberry*, p. 354.

[47] https://docs.lightning.engineering/the-lightning-network/taro and https://tarilabs.com/faq/, last accessed February 25, 2023.

[48] Dr. Palmatier also cites to social media platforms such as Twitter, Reddit, Discord, and Substack (*Palmatier Declaration*, ¶ 42). As noted above TARO and Tari do not appear in proximity on these platforms, but instead appear independently in separate posts that would not be seen together as a result of some search. To provide one example using Reddit, there are no instances of "TARO" on the "Tari" subreddit r/tari (https://www.reddit.com/r/tari/search/?q=taro&restrict_sr=1&sr_nsfw=, last accessed February 24, 2023) and there are no instances of "Tari" on the Lightning Network subreddit r/lightningnetwork (https://www.reddit.com/r/lightningnetwork/search/?q=tari&restrict_sr=1&sr_nsfw=, last accessed February 24, 2023).

31. Similarly, articles describing either party in publications like Bitcoin Magazine[49] or on forums such as Reddit[50] also provide extensive detail and context. None of this information or context is present in the survey. Nor did Dr. Palmatier test the appearance of the marks on Twitter, Discord, or any of the other examples cited in his report.[51]

32. Although Dr. Palmatier tells respondents that they will be shown "pictures of products,"[52] and opines that his results indicate that "consumers believed that Taro *products and services* were owned by, endorsed by, or otherwise affiliated with Tari,"[53] none of the respondents in the survey were shown any products or services. Accordingly, the survey results shed no light on how consumers would respond in the real world when they encounter the TARI or TARO products, the respective websites, or any other real-world scenario.

33. The complete absence of any information and context from the survey not only undermines the reliability of the survey's ability to estimate likely confusion in the real world, but it also creates demand effects leading to an upward bias in the confusion estimate. Demand effects in a survey occur when an aspect of the research design suggests or leads respondents to provide a particular answer. As one author explains:

> [i]f survey respondents are shown both brands sequentially (alongside other brands, and even if we assume that a proper control is used), some (or many) respondents may suspect, for example, that the survey designer knows something about the true relations between two brands that the respondents do not know. Once they form such a (demand-based) hypothesis, survey respondents may seek clues (e.g., a

[49] Bitcoin Magazine includes a number of articles categorized as "technical," e.g., https://bitcoinmagazine.com/technical/addressing-realities-of-taros-limitations, https://bitcoinmagazine.com/technical/how-bitcoin-taro-protocol-works and https://bitcoinmagazine.com/technical/taro-launches-stablecoins-on-bitcoin, last accessed February 24, 2023.

[50] See, e.g., https://www.reddit.com/r/Bitcoin/comments/108fpic/taro_a_new_asset_issuance_protocol_on_bitcoin/, last accessed February 25, 2023. The top posting here includes a link to an article detailing TARO described as a "50 minute read." https://coinshares.com/research/taro-a-new-asset-issuance-protocol-on-bitcoin, last accessed February 23, 2023.

[51] *Palmatier Declaration,* ¶¶ 42-43.

[52] *Palmatier Declaration,* Exhibit 4, p. 4.

[53] *Palmatier Declaration,* ¶ 5, emphasis added.

similarity on a certain dimension or some other justification) that support the guess that the presented brands are related in some manner.[54]

34. In this case, Dr. Palmatier has created a matching game in which respondents are likely to guess that at least one of the names (TARO, CORDA, POLYGON, and ECHO) are related to the first one shown (TARI). Because there is no information accompanying the names shown, no actual products or services shown or even described, respondents are left to guess that at least one of the names being shown in the lineup is related to the first name shown. It is not surprising, given the significant demand effects, that respondents would attempt to guess which two the researcher wants them to say are related.

35. In fact, Dr. Palmatier's own data indicate that many respondents simply guessed at the relationship between TARO and Tari because they are the most likely pair. This includes respondents' indicating that TARO was made or put out by the same company as Tari (Question 1b) for reasons such as the fonts, starting with the letter "T", or the sound of the word.

36. Dr. Palmatier's survey does not represent any real-world presentation of the products and services offered by Plaintiff and Defendant. While Dr. Palmatier cites to a number of examples of where the marks might appear (on the internet, social media, and in publications), his survey does not test any of these displays. Furthermore, the absence of any context renders Dr. Palmatier's survey a matching test, suggesting to respondents that they seek out the most likely pair from the list of names provided. Such a design offers no reliable data as to the potential for any real-world confusion.

[54] *Simonson & Kivetz*, pp. 250-251. As these authors further note, "[t]he respondent-provided explanations will often not be very informative in such cases, because they will tend to refer to the available clues and may thus falsely appear to confirm the alleged cause of confusion" (p. 251). Such is the case in Dr. Palmatier's survey. He notes that 67 percent of respondents counted as confused did so because of the "similarity of TARO to Tari's Marks" (*Palmatier Declaration,* ¶ 81) but, of course, these results are easily understood as respondents who were looking for a reasonable explanation for the "match" they provided and are not evidence of a likelihood of confusion.

c. The Survey Questions are Leading and Biased

37. The demand effects present in Dr. Palmatier's survey are exacerbated by his leading and biased questions. As shown below in Figure 1, each of the key survey questions asks respondents to identify the "product" ***likely*** to be associated with Tari (emphasis added below).

Figure 1: Confusion Questions in the Palmatier Survey[55]

Q1 Now thinking back to Product No. 1 (the first product image you saw), do you think any of the products pictured on this screen is (are) **likely to be made or put out by the same company** that makes or puts out Product No. 1? If you don't know, feel free to say so.

Q2 Now thinking back to Product No. 1 (the first product image you saw), do you think any of the products on this screen is (are) made or put out by a company **that is likely affiliated, associated, or connected with the same** company that makes or puts out Product No. 1? If you don't know feel free to say so.

Q3 Now thinking back to Product No. 1 (the first product image that you saw), do you think that any of the companies that make or put out the products picture on this screen is (are) **likely to have the authorization, approval, or endorsement of the same** company that makes or puts out Product No. 1? If you don't know please feel free to say so.

38. As shown above, in the question stems themselves, Dr. Palmatier instructs respondents to guess as to some ***likely*** relationship between products. The suggestion that respondents guess as to what is "likely" violates proper survey procedure and is further problematic because, in this case, respondents are actually being asked about unidentified products that are not being shown. In other words, respondents are asked to evaluate some possible relationship between unidentified products that they have to imagine or assume since these products are not actually part of the survey – only the names of the companies are presented. Asking about a possible relationship (as opposed to a perceived or believed relationship) increases the chances that respondents will simply guess and look for some reason to draw connections between the names shown.

[55] *Palmatier Declaration*, Exhibit 4, pp. 4-5.

39. Dr. Palmatier provides no explanation as to why respondents were asked about possible relationships between unidentified products not shown rather than asking about perceptions or beliefs when viewing actual stimuli using the marks as they appear in the real world.

d. The Control is Wholly Inadequate

40. A survey designed to measure likelihood of confusion may include survey "noise" or responses that are unrelated to the stimulus being tested—this "noise" may include guessing, yea-saying, inattention, misunderstanding or responses generated resulting from demand effects. Responses that are "noise" should not count as confusion and should be removed from the final calculations. As a means of doing this, it is standard practice for researchers to include a "control" group in their research to account for the potential impact of guessing or other forms of survey noise.[56] In particular, a *Squirt*-style survey demands a robust control due to the suggestiveness of presenting consumers with a series of products and asking about relationships. In other words, respondents in a *Squirt* survey are more likely to guess, thus creating more survey "noise" that needs to be accounted for with a control.

41. Dr. Palmatier's control is inadequate and does not provide a reliable means for measuring the extent to which his estimates of confusion are inflated by survey "noise."

42. First, Dr. Palmatier relies on internal controls rather than a separate external control group. An external control is part of an experimental design that makes use of separate groups of respondents. Experimental designs with separate test and control groups allows the researcher to precisely isolate the amount of confusion caused by specific allegedly infringing characteristics of the stimulus. An internal control, like the one implemented by Dr. Palmatier, is a design where all respondents view the same stimulus and the rates of confusion for one element are compared to

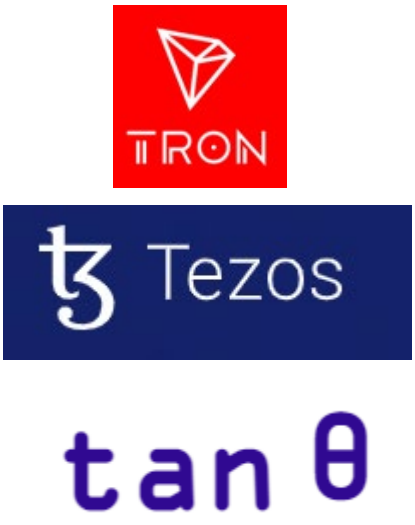
[56] More specifically, Diamond writes that "[c]ontrol groups and, as a second choice, control questions are the most reliable means for assessing response levels against the baseline level of error associated with a particular question," Diamond, S. (2011) Reference guide on survey research, pp. 359-423 in the *Reference Manual on Scientific Evidence,* Committee on the Development of the Third Edition of the Reference Manual on Scientific Evidence; Federal Judicial Center; National Research Council p. 401 (hereinafter, "*Diamond*").

the rates of confusion for other elements. Unlike an external control, the results for internal controls may be affected by the test or other elements of the survey not at issue. In other words, an internal control cannot determine the impact of the at issue element holding all else constant. As noted by Shari Diamond, a leading survey expert, such internal controls are weaker and less robust than a separate control group.[57] In this case, the use of an internal control is further inappropriate because respondents have been asked to identify the name(s) ***likely*** to be associated with Tari. Respondents who are guessing or are responding simply as a result of demand effects may simply select one name (the most "likely") and guess no others, inflating the rate of selecting TARO and depressing the rate at which any other names are selected.

43. Even if an internal control has some justification (which it does not in this case, particularly given the highly leading design devoid of marketplace realities), the names selected by Dr. Palmatier (Echo, Polygon, and Corda) do not accurately reflect the fact that there are other related platform names that are closer in style and sound to TARO.

44. For example, as shown in Figure 2 below, the blockchain company "Tron" starts with "T" and uses a symbol that is similar to the symbol used by Tari. Other companies such as "Tezos" and "tan" also start with the letter "T" and utilize a symbol in their name.

Figure 2: Other Blockchain Companies[58]



[57] *Diamond*, p. 401.

[58] https://static.tron.network/pdf/TRON_Crypto%20ETFs%200917.pdf, https://tezos.com/, and https://tanthetaa.com/?utm_medium=referral&utm_source=clutch.co, last accessed February 24, 2023.

45. Using additional short, "T" formative names in the array would have more accurately represented the marketplace and would have been one means of lessening the suggestiveness of the survey design. Instead, Dr. Palmatier's array includes only one name starting with "T," TARO, further encouraging respondents to guess in a manner that inflates the number of "confused" respondents.

e. Survey Population is Overly Broad

46. The correct survey population for a likelihood of confusion survey alleging forward confusion is the junior user's target market.[59] It is important that the researcher design the screening questionnaire to identify this population. As I explain below, Dr. Palmatier's population is overinclusive for his purported forward confusion survey. The way that Dr. Palmatier screened respondents makes it impossible to identify who, if anyone, in his ultimate sample is actually a member of the relevant subset of the population. As Shari Diamond explains:

> If the survey expert can demonstrate that a sufficiently large (and representative) subset of respondents in the survey was drawn from the appropriate sampling frame, the responses obtained from that subset can be examined, and inferences about the relevant population can be drawn based on that subset. If the relevant subset cannot be identified, however, an overbroad sampling frame will reduce the value of the survey.[60]

47. In this case, TARO is the junior user, and thus the correct universe should be the target market for Lightning Labs' TARO software protocol. I understand that Lightning Labs' TARO software protocol was created as a software platform "that developers will be able to use to issue new digital assets on the Bitcoin blockchain and transact with them over the Lightning Network."[61] In other words, Lightning Labs' users, and specifically those for whom TARO was

[59] Barber, W.G. and Yaquinto, G.E. (2022). The universe, pp. 31-56 in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design,* 2nd ed., Shari Seidman Diamond and Jerre B. Swann, eds., Chicago, IL : American Bar Association, pp. 32-34.

[60] *Diamond*, p. 379.

[61] *Answer to Complaint*, p. 3. I further understand that the Lightning network is "an open-source protocol that is built on top of Bitcoin." *Answer to Complaint*, p. 3.

created, are likely to include predominantly sophisticated software developers, as well as other individuals who have such technical skills.[62]

48. The target market for Lightning's TARO software protocol is described in blog posts where Lightning Labs announced the release of TARO. For example:

- "Today we're excited to announce the alpha release of the Taro daemon, enabling **developers** to mint, send, and receive assets on the bitcoin blockchain."[63]
- "Taro relies on Taproot, bitcoin's most recent upgrade, for a new tree structure that allows **developers** to embed arbitrary asset metadata within an existing output."[64]
- "We're incredibly excited to get this open source alpha daemon code into the hands of the **developer community** to build with…"[65]
- "A **developer** mints a new Taro asset by making an on-chain transaction that commits to special metadata in a Taproot output." [66]

49. Dr. Palmatier did not screen for, nor does he have any way to determine whether any of his survey respondents are, software developers. Dr. Palmatier never asks respondents their occupation or industry, their job title, or whether they have worked in software development. And in fact, Dr. Palmatier terminated respondents who reported that they work for "a company involved with financial products, NFTs, or cryptocurrency products,"[67] further undermining the reliability of his results as developers who work in or are involved with this industry (and who were screened out) are those most likely to encounter TARO.

50. To qualify for his survey, respondents simply had to report that in the past six months they have "bought or considered using Bitcoin, stablecoins, cryptocurrencies, NFTs, or other digital assets," or report that they plan to "buy or use Bitcoin, stablecoins, cryptocurrencies, NFTs, or other digital assets" in the next six months.[68] It is not possible from this screening question to ascertain what proportion, if any, of Dr. Palmatier's population is part of the relevant

[62] See *Stark Declaration*, ¶¶ 19, 22, 35.
[63] *Complaint*, Exhibit H, p. 1, emphasis added.
[64] https://lightning.engineering/posts/2022-4-5-taro-launch/, last accessed February 24, 2023.
[65] *Complaint*, Exhibit H, p. 5, emphasis added.
[66] *Complaint*, Exhibit H, p. 2, emphasis added.
[67] *Palmatier Declaration*, Exhibit 4, p. 1.
[68] *Palmatier Declaration*, ¶ 53.

universe of more sophisticated consumers. Thus, as Shari Diamond notes, his population is overbroad and the value of the survey is reduced.

51. Even assuming that there is some value in Dr. Palmatier's overly broad population (which there is not), the vague qualifying language raises questions as to who actually did qualify. For instance, it is impossible to know how many of Dr. Palmatier's respondents have *bought* versus *used* the types of "digital assets" asked about. There is ambiguity as to what *use* means in the context of his screener, and if it means different things depending upon which "digital asset" the respondent had in mind. We have no indication of what it would mean for the average consumer to *consider* such a purchase (or use), nor do we know what consumers' definition of *digital asset* was when answering the key screening question. In this way, Dr. Palmatier's sample is overinclusive, as it likely includes respondents with any number of different interpretations of the key phrases in his screening questions, as opposed to one correct and precise definition.

52. While Dr. Palmatier asserts that anyone generally interested in Bitcoin, stablecoins, cryptocurrencies, NFTs, or other digital assets should qualify, it is clear that such a broad and vaguely defined population is not the target market for Lightning Labs' TARO product. Instead, it is likely that at a minimum the target population would need some level of sophistication in software development, whether or not they are actually employed in the industry. His target population is therefore overinclusive as it likely contains many individuals who would never interface with the TARO product and may not even be knowledgeable about related products such as Bitcoin or cryptocurrency.

53. Relatedly, there is evidence in the data that many of the screened respondents are not qualified to participate in the survey. Some answers indicate that respondents are clearly guessing. For instance, when asked why they connect TARO with Tari, respondents answered:[69]

- Respondent 23: "I have no idea really"
- Respondent 615: "Not sure, but it seems like it would just be made by the same company has Product No. 1."
- Respondent 801: "Not really sure just taking a guess."

[69] 3367_Dat_020623.xlsx.

- Respondent 893: "I just took a guess, not knowing if I'm right or not."
- Respondent 856: "It seems to stand out more than the others. I would need more information about this."

54. Other respondents provided nonsense answers or explanations for connecting TARO with Tari that appear unrelated to the question posed:[70]

- Respondent 38: "Easy to use."
- Respondent 98: "I love eit a lot"
- Respondent 208: "it is very good"
- Respondent 29: "It's so good, I like it very much."
- Respondent 207: "very reputed"
- Respondent 1244: "while selecting the best dealer for your vehicle's maintenance?"

55. Such answers suggest that at least some respondents are not familiar with the names of any of the products or services at issue or were confused by the questions.

56. Even assuming that Dr. Palmatier's characterization of the appropriate survey population is appropriate (which it is not), he implemented a sampling design that likely rendered his survey population less representative of the identified target.

57. First, Dr. Palmatier instructed the panel company to match his sample to the U.S. population on both age and gender.[71] It is unclear why Dr. Palmatier wanted his sample to be representative of U.S. consumers at large. This is not consistent with his target sample of cryptocurrency and NFT users broadly, nor is it consistent with the more targeted population of software developers or those with related programming skills.

58. For example, Dr. Palmatier's sample is comprised of 50 percent men and 50 percent women which does not reflect the gender distribution of blockchain software developers (nor technology-based jobs as a whole).[72] Thus, whether he intended to target developers or

[70] *Id.*

[71] *Palmatier Declaration*, ¶ 55, "to assure the representativeness of the sample, quotas for age (+/10% approximate U.S. census population) and gender (+/10% of 50/50%) were also implemented."

[72] Custer, C. (2018). "Blockchain's Gender Divide: A Data Story." *LongHash.* December 11th. https://web.archive.org/web/20200329135219/https://en.longhash.com/news/blockchains-gender-

consumers, it is unclear why Dr. Palmatier directed the panel company to evenly sample males and females for his survey. Similar disconnects are found in the age distribution of respondents in Dr. Palmatier's sample and the ages of software developers and cryptocurrency users.[73,74]

59. Dr. Palmatier further biased his sample by specifically excluding mobile respondents. Respondents were only permitted to take the survey on a desktop or laptop computer.[75] The survey methodology literature indicates that respondents who start surveys on mobile phones tend to be younger (i.e., ages 18-34) compared to those who start on desktops or laptops.[76] This matters for Dr. Palmatier's survey because, as described above, the individuals most likely to be in his relevant target population also skew young.

60. In sum, Dr. Palmatier's target population is overinclusive in that it likely includes individuals who would not be exposed to TARO in the marketplace. Because Dr. Palmatier asked inappropriate and imprecise screening questions, it is impossible to identify the relevant

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divide-a-data-story, last accessed February 24, 2023; CompTIA. 2022. "State of the Tech Workforce." *The Computing Technology Industry Association*, https://www.cyberstates.org/pdf/CompTIA_Cyberstates_2022.pdf, p. 16, last accessed February 24, 2023 (hereinafter "*CompTIA*").

[73] The age distribution of Dr. Palmatier's sample is also not representative of either of these populations. Dr. Palmatier's sample was comprised of 16.0 percent age 21-29, 44.5 percent age 30-54, and 40.0 percent age 55 or older, which roughly matches the U.S. adult population (https://data.census.gov/table?q=american+community+survey&tid=ACSST1Y2021.S0101, last accessed February 26, 2023). This distribution differs from that of software developers, which one study reports are comprised nearly 40 percent aged 19-34 (*CompTIA*, p. 134), i.e., skewing much younger than the general U.S. population. Cryptocurrency users, too, skew younger. In 2021, the Pew Research Center found that 31 percent of Americans aged 18-29 have invested in, traded, or used a cryptocurrency, compared to 21 percent age 30-49, 8 percent age 50-64, and only 3 percent of adults age 65+ (Perrin, Andrew. 2021. *Pew Research Center.* https://www.pewresearch.org/fact-tank/2021/11/11/16-of-americans-say-they-have-ever-invested-in-traded-or-used-cryptocurrency/, last accessed February 24, 2023). It is clear that the age distribution of Dr. Palmatier's sample skews much older than the age distribution of cryptocurrency users. I note also that Dr. Palmatier excluded adults aged 18, 19, and 20, requiring respondents report being 21 or older to participate (*Palmatier Declaration*, Exhibit 4, p. 1). He offers no explanation for this decision.

[74] I also note that Dr. Palmatier's age distribution is inconsistent within gender. Female respondents are overrepresented in the 55+ age category (59 percent) while males are overrepresented in the 30-54 category (65 percent).

[75] *Palmatier Declaration*, Exhibit 4, p. 1.

[76] See, e.g., Peterson, G., Griffin, J., et al. (2017). "Smartphone Participation in Web Surveys." pp. 203-233 in *Total survey error in practice: Improving quality in the era of big data,* ed. by Paul P. Biemer et al. John Wiley & Sons, pp. 206-209.

subgroup(s) of respondents in his survey data. Further, Dr. Palmatier balances his sample to match the characteristics of the U.S. population as a whole, which neither matches his (flawed) target population nor the more qualified population of programmers/developers. Finally, I note that even if Dr. Palmatier had obtained a sample that is representative of the correct target population of software developers, the above-described flaws in his survey design are so significant as to outweigh any benefit.

V. QUALIFICATIONS

61. I am a Managing Director at NERA Economic Consulting ("NERA"), where I am the Chair of the Survey and Sampling Practice and a member of the Intellectual Property and Antitrust Practices. My business address is 4 Embarcadero Center, San Francisco, CA 94111. NERA is a firm providing expert statistical, survey, economic, and financial research analysis.

62. Among my responsibilities, I conduct survey research, market research, and sampling analysis on a wide range of topics regarding business and consumer decision making, consumer perceptions, and consumer behavior. In the course of my career, I have conducted research for leading corporations and government agencies on consumers, employees, and businesses. My work has been included in numerous lawsuits involving issues of trademark and trade dress confusion, secondary meaning, and false advertising, as well as in antitrust and employment-related litigation. I am a member of the American Association of Public Opinion Research, the American Statistical Society, the Intellectual Property Section of the American Bar Association, and the International Trademark Association (INTA).

63. I have also worked as a market researcher conducting surveys and other forms of research, including personally conducting focus groups and in-depth interviews with consumers and professionals. I have worked as an independent consultant conducting research for the Department of Environment and Rural Affairs in the United Kingdom. I have taught courses focused on or involving research methodologies in both the United States and Europe. I hold a Master's Degree from Trinity College, Dublin and another Master's Degree from Temple University.

64. I have substantial experience conducting and using surveys to measure consumer opinions and behaviors regarding products and services including brand awareness, purchase processes, product attributes, market segmentation, new product research, and advertising strategies. During my career in academic and commercial research, I have personally facilitated a wide range of research including surveys, focus groups, and in-depth interviews.

65. I have submitted expert reports, been deposed, and have testified at trial within the last five years. A list of my testimony is included on the copy of my current resume, which is attached as **Exhibit E**.

66. NERA is being compensated for my services in this matter at my standard rate of $775 per hour. Members of the staff at NERA have worked at my direction to assist me in this engagement. No part of my compensation or NERA's compensation depends on the outcome of this litigation. Throughout this report, I have used the terms "I" and "my" to refer to work performed by me and/or others under my direction.

VI. DOCUMENTS REVIEWED

67. As part of my work, I reviewed a number of materials and a list of these can be found in **Exhibit F**.

VII. CONCLUSIONS

68. The test for potential confusion that Dr. Palmatier has designed and conducted is wholly unreliable. The survey methodology he has implemented is valid only when the marks at issue are proximate in the marketplace, yet Dr. Palmatier provides no evidence of this proximity, and my own preliminary research suggests that no such proximity exists. Even if a *Squirt* style survey were appropriate (which it is not), Dr. Palmatier's survey fails entirely to replicate marketplace conditions because he has not tested any materials that the relevant population of consumers might actually encounter (in proximity or otherwise). He has tested only company names in isolation from their relevant context, and his survey is therefore a name-matching test that is not generalizable to any real-world scenario. In addition, Dr. Palmatier uses leading and biased questions, does not include a proper control group (only inadequate, internal "controls"),

and surveys an overly inclusive survey population that is prone to guess and otherwise be influenced by the biased design of his survey.

69. My opinions and conclusions as expressed in this declaration are to a reasonable degree of professional and scientific certainty. My conclusions have been reached through the proper application of survey methods and using standard methodologies relied upon by experts in the field of survey and market and consumer research. My work is ongoing, and my opinions will continue to be informed by any additional material that becomes available to me. I reserve the right to update and or supplement my opinions if additional information is provided.

70. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Sarah Butler, Managing Director
February 27, 2023